NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

WINDBREAK/SHELTERBELT ESTABLISHMENT

(Feet)

CODE 380

DEFINITION

Linear plantings of single or multiple rows of trees or shrubs established for environmental purposes.

PURPOSES

- Reduce wind erosion.
- Protect growing plants.
- Manage snow.
- Provide shelter for structures and livestock.
- Provide wildlife habitat.
- Provide a tree or shrub product.
- Provide living screens.
- Improve aesthetics.
- Improve irrigation efficiency.

CONDITIONS WHERE PRACTICE APPLIES

On any areas where woody plants are suited.

CRITERIA

General Criteria Applicable To All Purposes Named Above

The location, layout and density of the planting will accomplish the purpose and function intended within a 20 year period.

The maximum design height (H) for the windbreak or shelterbelt shall be the expected height of the tallest row of trees or shrubs at age 20 for the given site.

Species must be suitable and adapted to the soils, climate and purpose.

Site preparation shall be sufficient for establishment and growth of selected species and appropriate for the site.

Only viable, high quality, and adapted planting stock or seed will be used.

The planting shall be done at a time and manner to insure survival and growth of selected species.

The planting will be protected from adverse impacts such as livestock damage or fire.

Avoid planting trees or shrubs where they will interfere with structures or any above or below ground utilities.

Moisture conservation or supplemental watering shall be provided for plant establishment and growth where natural precipitation is too low for the selected species.

Additional Criteria To Reduce Wind Erosion; Protect Growing Plants

The windbreak will be oriented as close to perpendicular to the troublesome wind as possible. The interval between windbreaks shall be determined using current, approved, wind erosion technology to achieve the quality level for the soil or plant resource. The distance sheltered by the barrier shall be 10 times the design height (H).

The wind erosion control system should consider temporary measures to supplement the windbreak until it is fully functional.

Additional Criteria To Manage Snow

The windbreak will be oriented as close to perpendicular to the snow-bearing wind as possible.

For snow distribution, the maximum windbreak density will be 65 percent and the interval between barriers will not exceed 20H.

For snow accumulation, the minimum barrier density will be 50 percent and the windward row will be at least 100 feet from the area to be protected.

Windbreaks will be located so that snow deposition will not adversely impact the area to be protected.

Additional Criteria To Provide Shelter For Structures And Livestock

The planting will be oriented as close to perpendicular to the troublesome wind as possible.

For wind protection, the minimum barrier density will be 65 percent and the area to be protected will fall within 10H of the design height.

Additional Criteria For Screens

Noise screens shall be dense, as tall as, and as close to the noise source as practicable.

Visual screens shall be located as close to the observer as possible.

CONSIDERATIONS

Spacing between windbreaks and rows of windbreaks may be adjusted, within limits of the criteria above, to accommodate widths of equipment.

Selection of plants for use in windbreaks should favor species or varieties tolerant to herbicides used in the area.

Plants which may be alternate hosts to undesirable pests should be avoided.

All plantings should compliment natural features.

Where water erosion and/or runoff from melting snow is a hazard, it should be controlled by supporting practices.

Wildlife needs should be considered when selecting tree or shrub species.

Species diversity should be considered to avoid loss of function due to species specific pests.

Consideration should be given to adverse offsite effects.

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each site. Specifications shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance):

Replacement of dead trees or shrubs will be continued until the barrier is functional.

Vegetative competition will be controlled.

Supplemental water will be provided as needed.

Thin the barrier to maintain its function.

Damaging pests will be monitored and controlled.

Periodic applications of nutrients may be needed to maintain plant vigor.